

THOMAS JEFFERSON SHARPTON

Rank: Associate Professor
Department: Department of Microbiology, Oregon State University
Department of Statistics, Oregon State University
Date Hired: October 15, 2013

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A. EDUCATION AND EMPLOYMENT INFORMATION

Education

2009 Ph.D. Microbiology, Designated Emphasis in Computational Biology, University of California, Berkeley, CA, USA
Dissertation: “Investigations of Natural Genomic Variation in the Fungi”
Advisors: John W. Taylor & Sandrine Dudoit

2003 B.S. (Cum Laude) Biochemistry and Biophysics, Oregon State University, Corvallis, OR, USA

Employment history

2019- *Associate Professor*
Department of Microbiology, Oregon State University
Department of Statistics, Oregon State University

2016- *Founding Director*
Oregon State University Microbiome Initiative

2013-2019 *Assistant Professor*
Department of Microbiology, Oregon State University
Department of Statistics, Oregon State University

2013- *Center Investigator*
Center for Genome Research and Biocomputing, Oregon State University

2009-2013 *Bioinformatics Fellow*
Gladstone Institute of Cardiovascular Disease, Gladstone Institutes
Advisors: Katherine Pollard & Jonathan Eisen (UC Davis)

2003-2009 *Graduate Student Researcher*
Department of Microbiology, University of California, Berkeley
Advisors: John Taylor & Sandrine Dudoit

2005 *Bioinformatics Research Intern*
The Broad Institute
Advisor: James Galagan

Additional Affiliations

2017-2018 *Scientific Advisory Board Member*

Resilient Biotics, Inc.

B. AWARDS

- 2019 Phi Kappa Phi Emerging Scholar Award
- 2018 OSU College of Science Research and Innovation Seed Program Award
- 2017 OSU College of Science Early Career Impact Award
- 2014 Finalist: Carter Award in Outstanding & Inspirational Teaching in Science
- 2013 Gladstone Scientific Leadership Award
- 2007 Dean's Council Student Research Representative
- 2007 Effectiveness in Teaching Award, UC Berkeley
- 2006-2008 Chang-Lin Tien Graduate Research Fellowship

C. SCHOLARSHIP AND CREATIVE ACTIVITY

1. Publications

Indicators: ^zcorresponding author; ^{\$}co-first authors; [^]Sharpton-trained undergraduate student; ^{*}Sharpton-trained graduate student; [#]Sharpton-trained postdoctoral scientist

i) Refereed publications

- 58. Sharpton TJ^z, Stagaman K, Sieler MJ, Arnold HK, Davis EW. (2021) *Phylogenetic Integration Reveals the Zebrafish Core Microbiome and Its Sensitivity to Environmental Exposures*. **Toxics**. 9(1), 10; <https://doi.org/10.3390/toxics9010010>.
- 57. Rodrigues RR, Gurung M, Li Z, Garcia-Jaramillo M, Greer R, Bauchinger F, You H, Pederson JW, Gaulke C[#], Vasquez-Perez S, White KD, Frink B, Philmus B, Jump DB, Trinchieri G, Berry D, Sharpton TJ, Amiran Dzutsev, Morgun A, Shulzhenko N^z. (2021) *Transkingdom interactions between Lactobacilli and hepatic mitochondria attenuate western diet induced diabetes*. **Nature Communications**. 12, 101. <https://doi.org/10.1038/s41467-020-20313-x>
- 56. Schaaf RM, Sharpton TJ, Murray KN, Kent AD, Kent ML^z. (2020). *Retrospective analysis of the Zebrafish International Resource Center diagnostic data links Pseudocapillaria tomentosa to intestinal neoplasms in zebrafish Danio rerio (Hamilton 1822)*. **Journal of Fish Diseases**. 00:1-4. DOI:10.1111/jfd.13233
- 55. Raber J^z, Anaya AF, Torres ERS, Lee J, Boutros S, Grygoryev D, Hammer A^{*}, Kasschau K[#], Sharpton TJ, Turker MS, Kronenberg A. (2020) *Effects of six sequential charged particle beams on behavioral and cognitive performance in B6D2F1 female and male mice*. **Frontiers in Physiology**. 11:959. <https://doi.org/10.3389/fphys.2020.00959>
- 54. Nalven SG, Ward CP, Payet JP, Cory RM, Kling GW, Sharpton TJ, Sullivan CM, Crump BC^z. (2020) *Experimental metatranscriptomics reveals the costs and benefits of dissolved organic matter photo-alteration for freshwater microbes*. **Environmental Microbiology**. <https://doi.org/10.1111/1462-2920.15121>
- 53. Stagaman K[#], Sharpton TJ, Guillemin K^z. (2020) *Zebrafish microbiome studies make waves*. **Lab Animal**. 49: 201-207. <https://doi.org/10.1038/s41684-020-0573-6>
- 53. Jiang D, Sharpton TJ, Jiang Y^z. (2020) *Microbial Interaction Network Estimation via Bias-Corrected Graphical Lasso*. **Statistics in Biosciences**. <https://doi.org/10.1007/s12561-020-09279-y>
- 52. Couch CE^{\$}, Arnold HK^{\$}, Crowhurst RS, Jolles AE, Sharpton TJ, Witczak MF, Epps CW, Beechler BR^z. (2020) *Bighorn sheep gut microbiomes associate with genetic and spatial structure across a metapopulation*. **Scientific Reports**. Apr 20;10(1):6582. doi: 10.1038/s41598-020-63401-0. PMID: PMC7171152.
- 51. Mendez RL, Miranda C, Armour CR, Sharpton TJ, Stevens JF, Kwon JY^z. (2020) *Supplementation with sea vegetables *Palmaria mollis* and *Undaria pinnatifida* exerts metabolic benefits in diet-*

- induced obesity in mice. Current Developments in Nutrition.* 4(5):nzaa072.
<https://doi.org/10.1093/cdn/nzaa072>
50. Logan IE, Bobe G, Miranda CL, Vasquez-Perez S, Choi J, Lowry MB, Sharpton TJ, Morgun A, Maier CS, Stevens JF, Shulzhenko N, Gombart AF^z. (2020) *Germ-Free Swiss Webster Mice on a High-Fat Diet Develop Obesity, Hyperglycemia, and Dyslipidemia. Microorganisms.* Apr 5;8(4). doi: 10.3390/microorganisms8040520. PubMed PMID: 32260528.
 49. Neves ALA, Chen Y, Lê Cao KA, Mandal S, Sharpton TJ, McAllister T, Guan LL^z. (2020) *Taxonomic and functional assessment using metatranscriptomics reveals the effect of Angus cattle on rumen microbial signatures. Animal.* Apr;14(4):731-744. doi: 10.1017/S1751731119002453. Epub 2019 Oct 30. PubMed PMID: 31662129.
 48. Sharpton TJ^z, Combrink L[#], Arnold HK^{*}, Gaulke CA[#], Kent M. (2020) *Harnessing the gut microbiome in the fight against anthelmintic drug resistance. Current Opinions in Microbiology.* Feb 27; 53:26-34. doi: 10.1016/j.mib.2020.01.017.
 47. Kashyap A, Rhodes A, Kronmiller B, Berger J, Champagne A, Davis EW, Finnegan MV, Geniza M, Hendrix DA, Löhr CV, Petro VM, Sharpton TJ, Wells J, Epps CW, Jaiswal P, Tyler BM, Ramsey SA^z. (2020) *Pan-tissue transcriptome analysis of long noncoding RNAs in the American beaver Castor canadensis. BMC Genomics.* Feb 12;21(1):153. doi: 10.1186/s12864-019-6432-4 PMCID: PMC7014947.
 46. Flannery J^{*§}, Stagaman K^{#§}, Burns AR, Hickey RJ, Roos LE, Giu RJ, Fisher P, Sharpton TJ^z (2020) *Gut feelings begin in childhood: how the gut metagenome links to early environment, caregiving, and behavior. mBio.* 11(1): e02780-19. doi: 10.1128/mBio.02780-19
 45. Y Zhang, G Bobe, JS Revel, R Rodrigues, TJ Sharpton, ML Fantacone, K Raslan, CL Miranda, MB Lowry, PR Blakemore, A Morgun, N Shulzhenko, CS Maier, JF Stevens, AF Gombart^z. (2020) *Improvements in Metabolic Syndrome by Xantohumol Derivatives are Linked to Altered Gut Microbiota and Bile Acid Metabolism in a Murine Diet-Induced Obesity Model. Molecular Nutrition & Food Research.* 64(1) <https://doi.org/10.1002/mnfr.201900789>
 44. Jiang D, Armour CR^{*}, Hu C, Mei M, Tian C, Sharpton TJ, Jiang Y^z. (2019) *Microbiome Multi-Omics Network Analysis: Statistical Considerations, Limitations, and Opportunities. Frontiers in Genetics.*
 43. Kent ML^z, Watral V, Gaulke CA[#], TJ Sharpton. (2019) *Further evaluation of the efficacy of emamectin benzoate for treating Pseudocapillaria tomentosa (Dujardin 1843) in zebrafish Danio rerio (Hamilton 1822). Journal of Fish Diseases.* 00:1-7.
 42. Armour C^{*}, Nayfach S, Pollard KP, Sharpton TJ^z. (2019) *A Metagenomic Meta-Analysis Reveals Functional Signatures of Health and Disease in the Human Gut Microbiome. mSystems.* 4:4, e00331-18.
 41. Raber J^z, Yamazaki J, Torres ERS, Kirchoff N^{*}, Stagaman K[#], Sharpton TJ, Turker MS, Kronenberg A (2019). *Combined Effects of Three High-Energy Charged Particle Beams Important for Space Flight on Brain, Behavioral and Cognitive Endpoints in B6D2F1 Female and Male Mice. Frontiers in Physiology.* 10:179. doi: 10.3389/fphys.2019.00179.
 40. Li Y, Li Y, Jin W, Sharpton TJ, Mackie RI, Cann I, Cheng Y[#], Zhu W^z. (2019). *Combined Genomic, Transcriptomic, Proteomic, and Physiological Characterization of the Growth of Pecoramyces sp. F1 in Monoculture and Co-culture With a Syntrophic Methanogen. Frontiers in Microbiology.* 10:435. doi: 10.3389/fmicb.2019.00435.
 39. Flannery J^{*}, Callaghan B, Sharpton TJ, Fisher P, Pfeifer J. (2019) *Is Adolescence the missing developmental link in Microbiome-Gut-Brain axis communication? Developmental Psychobiology.* 61:783-795. doi: 10.1002/dev.21821
 38. Morelan IA, Gaulke CA[#], Sharpton TJ, Vega Thurber R, Denver DR^z. (2019). *Microbiome variation in an intertidal sea anemone across latitudes and symbiotic states. Frontiers in Marine Science.* 6:7 doi: 10.3389/fmars.2019.00007.
 37. Gaulke CA[#], Martins ML, Watral V, Humphreys IR[^], Spagnoli ST, Kent ML, Sharpton TJ^z. (2019) *A Longitudinal Assessment of Host-Microbe-Parasite Interactions Resolves the Zebrafish Gut*

- Microbiome's Link to Pseudocapillaria tomentosa Infection and Pathology*. **Microbiome**. 7:10. doi: <https://doi.org/10.1186/s40168-019-0622-9>
36. Kirchoff N*, Udell M, Sharpton TJ^z. (2019) *The gut microbiome correlates with conspecific aggression in a small population of rescued dogs (Canis familiaris)*. **PeerJ**. 7:e6103. doi: 10.7717/peerj.6103.
 35. Gaulke CA[#], Rolshoven J*, Wong CP, Hudson LG, Ho E, Sharpton TJ^z. (2018) *Marginal Zinc Deficiency and Environmentally Relevant Concentrations of Arsenic Elicit Combined Effects on the Gut Microbiome*. **mSphere**. 3(6). doi: 10.1128/mSphere.00521-18.
 34. Kent ML^z, Gaulke CA[#], Watral V, Sharpton TJ. (2018) *Pseudocapillaria tomentosa in a laboratory zebrafish (Danio rerio): patterns of infection and dose response*. **Diseases of Aquatic Organisms**. 131(2):121-131. doi: 10.3354/dao03286..
 33. Gaulke CA[#], Arnold HK*, Humphreys IR[^], Kembel SW, O'Dwyer JP, Sharpton TJ^z. (2018) *Ecophylogenetics Clarifies the Conservation of Gut Bacteria Across Mammals*. **mBio**. 9:e01348-18. <https://doi.org/10.1128/mBio.01348-18>.
 32. Torres ERS, Akinyeke T, Stagaman K[#], Duvoisin RM, Meshul CK, Sharpton TJ, Raber J^z. (2018). *Effects of sub-chronic MPTP exposure on behavioral and cognitive performance of wild-type and mGlu8 knockout female and male mice*. **Frontiers in Neuroscience**. 12:140. doi: 10.3389/fnbeh.2018.00140.
 31. Wang L, Shantz AA, Payet JP, Sharpton TJ, Foster A, Burkepile DE, Vega Thurber R^z (2018). *Corals and Their Microbiomes are Differentially Affected by Exposure to Elevated Nutrients and a Natural Thermal Anomaly*. **Frontiers in Marine Science**. <https://doi.org/10.3389/fmars.2018.00101>.
 30. Allan ERO, Tennessen JA, Sharpton TJ, Blouin MS^z. (2018) *Allelic Variation in a Single Genomic Region Alters the Microbiome of the Snail Biomphalaria glabrata*. **Journal of Heredity**. Esy014. <https://doi.org/10.1093/jhered/esy014>.
 29. Sharpton TJ^z. (2018) *Role of the Gut Microbiome in Vertebrate Evolution*. **mSystems**. 3 (2): e00174-17. DOI: 10.1128/mSystems.00174-17.
 28. Cheng T[#], Wang Y, Li Y, Zhang Y, Liu T, Wang Y, Sharpton TJ, Zhu W^z. (2017) *Progressive Colonization of Bacteria and Degradation of Rice Straw in the Rumen by Illumina Sequencing*. **Frontiers in Microbiology**. 8: 2165. doi: [10.3389/fmicb.2017.02165](https://doi.org/10.3389/fmicb.2017.02165)
 27. Sharpton TJ^s, Lyalina S^s, Luong J, Pham J, Deal EM, Armour C[#], Gaulke C[#], Sanjabi S, Pollard KS^z. (2017) *Development of Inflammatory Bowel disease is Linked to a Longitudinal Restructuring of the Gut Metagenome in Mice*. **mSystems**. doi: 10.1128/mSystems.00036-17
 26. Burns AR, Watral V, Sichel S, Spagnoli S, Banse AV, Mittge E, Sharpton TJ, Guillemin K, Kent ML^z. (2017) *Transmission of a intestinal neoplasm in zebrafish by cohabitation*. **Journal of Fish Diseases**. doi: 10.1111/jfd.12743
 25. Wilson AK[^], Watral VG, Kent ML, Sharpton TJ, Gaulke CA^{#z}. (2017) *Draft Genome Sequence of Pseudomonas sp. Strain DrBH11 (Phylum Proteobacteria)*. **Genome Announcements**. 5 (39): e01090-17.
 24. Foster Z, Sharpton TJ, Grunwald N^z. (2017) *Metacoder: An R package for visualization and manipulation of community taxonomic diversity data*. **PLOS Computational Biology**. 13(2): e1005404. <https://doi.org/10.1371/journal.pcbi.1005404>
 23. Conley MN*, Roberts C, Sharpton TJ, Iwaniec UT, Hord N^z. (2017) *Increasing dietary nitrate has no effect on cancellous bone loss or fecal microbiome in ovariectomized rats*. **Molecular Nutrition & Food Research**. 61(5): 1600372. PMID: PMC5434898
 22. Gaulke CA[#], Barton CL, Proffitt S, Tanguay RL, Sharpton TJ^z. (2016) *Triclosan Exposure is Associated with Rapid Restructuring of the Gut Microbiome in Adult Zebrafish*. **PLOS ONE**. 11(5): e0154632
 21. Conley MN*, Wong CP, Duyck K[^], Hord N, Ho E, Sharpton TJ^z. (2016) *Aging and serum MCP-1 are associated with gut microbiome composition in a murine model*. **PeerJ**. 4:e1854.

20. Kent M^z, Watral V, Kirchoff N*, [Sharpton TJ](#). (2016) Effects of subclinical *Mycobacterium chelonae* infections on fecundity and embryo survival in zebrafish. **Zebrafish**. 13(S1): S-88-S-95.
19. Nayfach S, Bradley PH, Wyman SK, Laurent TJ, Williams A, Eisen JA, Pollard KS, [Sharpton TJ](#)^z. (2015) Automated and accurate estimate of gene family abundance from shotgun metagenomes. **PLOS Computational Biology**. 11(11):e1004573
18. O'Dwyer JP^z, Kembel SW, [Sharpton TJ](#) (2015) *Backbones of Evolutionary History Test Biodiversity Theory for Microbes*. **The Proceedings of the National Academy of Sciences**. 112(27):8356-61.
17. Quandt AC, Kohler A, Hesse C, [Sharpton TJ](#), Martin F, Spatafora JW^z. (2015) Metagenomic sequence of *Elaphomyces granulatus* from sporocarp tissue reveals Ascomycota ectomycorrhizal fingerprints of genome expansion and a Proteobacteria rich microbiome. **Environmental Microbiology**. doi: 10.1111/1462-2920.12840. PMID: In process
16. Skewes-Cox P, [Sharpton TJ](#), Pollard KS, DeRisi JL^z. (2014) Profile hidden Markov models for the detection of viruses within metagenomic sequence data. **PLOS ONE**. 9(8): e105067.
15. C. Huttenhower^z, R. Knight, C.T. Brown, J.G. Caporaso, J.C. Clemente, D. Gevers, E.A. Franzosa, S.T. Kelley, D. Knights, R.E. Ley, A. Mahurkar, J. Ravel, The Scientists for Advancement of Microbiome Research, O. White (2014). *Advancing the microbiome research community*. **Cell**. 159(2): 227-230.
14. Kent M^z, Soderlund K, Thomann E, Schreck CB, [Sharpton TJ](#). (2014) Post-mortem sporulation of *Ceratomyxa Shasta* (Myxozoa) after death in adult Chinook salmon. **Journal of Parasitology**. 100(5):679-83
13. [Sharpton TJ](#)^z. (2014) *An Introduction to the Analysis of Shotgun Metagenomic Data*. **Frontiers in Plant Genetics and Genomics**. 5(209) PMID: PMC4059276.
12. Kidd JM^s, [Sharpton TJ](#)^s, Norman PJ, Carpenter M, Sikora M, Gignoux CR, Gorgani NN, Agilent Technologies, Pollard KS, Parham P, Feldman MW, Wall J, Bustamante CD, Henn BM^z. (2014) Exome Capture from Saliva Produces High Quality Genomic and Metagenomic Data. **BMC Genomics**. 15(262). PMID: PMC4051168
11. Finucane M, [Sharpton TJ](#), Laurant T, Pollard KS^z (2014) A taxonomic signature of obesity in the microbiome? Getting to the guts of the matter. **PLOS ONE**. 9(1): e84689. PMID: PMC3885756
10. Ladau J, [Sharpton TJ](#), Jospin G, Kembel SW, O'Dwyer JP, Koeppl A, Green JL, Pollard KS^z. (2013) Global marine bacterial diversity peaks at high latitudes in winter. **International Society of Microbial Ecology Journal**. Published online March 21, 2013; DOI: 10.1038/ismej.2013.37. PMID: PMC3749493
9. [Sharpton TJ](#)^{s,z}, Jospin G^s, Wu D, Langille MG, Pollard KS, Eisen JA (2012). Sifting through genomes with iterative-sequence clustering produces a large, phylogenetically diverse protein-family resource. **BMC Bioinformatics**. 13(1): 264. PMID: PMC3481395
8. Whiston E, Wise HZ, Jui G, [Sharpton TJ](#), Cole GT, Taylor JW^z. (2012) Comparative Transcriptomics of the Saprobic and Parasitic Growth Phases in *Coccidioides* spp. **PLOS ONE**. 7(7): e41034. PMID: PMC3401177
7. Wylie KM, Truty RM, [Sharpton TJ](#), Mihindukulasuriya KA, Zhou Y, Gao H, Sodergren E, Weinstock GM, Pollard KS^z (2012). Novel bacterial taxa in the human microbiome. **PLOS ONE**. 7(6): e3529. PMID: PMC3374617
6. The Human Microbiome Project Consortium (2012) A Framework for Human Microbiome Research. **Nature**. 486: 215–221. PMID: PMC3377744
5. The Human Microbiome Project Consortium (2012). Structure, function and diversity of the human microbiome in an adult reference population. **Nature**. 486: 207-214. PMID: PMC3564958
4. [Sharpton TJ](#)^z, Riesenfeld SJ, Kembel SW, Ladau J, O'Dwyer JP, Green JL, Eisen JA, Pollard KS (2011). *PhyLOTU: a high-throughput procedure quantifies microbial community diversity and resolves novel taxa from metagenomic data*. **PLOS Computational Biology**. 7(1): e1001061. PMID: PMC3024254

3. Neafsey DE, Barker BM, Sharpton TJ, Stajich JE, Park D, Whiston E, Hung C, McMahan C, White J, Sykes S, Heiman D, Young S, Zeng Q, Abouelleil A, Aftuck L, Bessette D, Brown A, FitzGerald M, Lui A, Macdonald JP, Priest M, Orbach MJ, Galgiani JN, Kirkland TN, Cole GT, Birren BW, Henn MR, Taylor JW, Rounsley SD^z. (2010) *Population Genomic Sequencing of Coccidioides Fungi Reveals Recent Hybridation and Transposon Control*. **Genome Research**. 20: 938–946. PMID: PMC2892095
2. Sharpton TJ^z, Stajich JE, Rounsley SD, Gardner MJ, Wortman JR, Jordar VS, Maiti R, Kodira CD, Neafsey DE, Zeng Q, Hung C, McMahan C, Muszewksa A, Grynberg M, Mandel MA, Kellner EM, Barker BM, Galgiani JN, Orbach MJ, Kirkland TN, Cole GT, Henn MR, Birren BW, Taylor JW. (2009) *Comparative Genomic Analyses of the Human Fungal Pathogens Coccidioides and their Relatives*. **Genome Research**. 19: 1722–1731. PMID: PMC2765278
1. Sharpton TJ, Neafsey DE, Galagan JE, and Taylor JW^z. (2008) *Mechanisms of Intron Gain. and Loss in Cryptococcus*. **Genome Biology**. 9(1): R24. PMID: PMC2395259

ii) Peer-edited publications

Invited commentaries:

1. Gaulke C[#], Sharpton TJ^z. (2018). *Ethnicity and geography influence the human gut microbiome*. **Nature Medicine**. 24, 1495-1496.
2. Sharpton TJ^z, Gaulke C[#]. (2015) *Modeling the Context-Dependent Associations between the Gut Microbiome, Its Environment, and Host Health*. **mBio**. 6(5): e01387-15.

Solicited commentaries:

1. Sharpton TJ^z, Jhaveri AA. (2006) *Leveraging the Knowledge of Our Peers: Online Communities Hold the Promise to Enhance Scientific Research*. **PLOS Biology**. 4(6): e199.

iii) White papers

1. **Lead Author**. *The Oregon State University Response to the Office of Science and Technology Policy's (OSTP) Request for Information on Microbiome Research*.
2. **Lead Author**. *The Transdisciplinary Initiative for Microbiome Research at Oregon State University*.

iv) Unpublished Preprints

1. Gaulke CA^{\$#}, Armour CA^{\$*}, Humphreys IR^{^*}, Beaver LM, Barton CL, Carbone L, Ho E, Tanguay RL, Jiang Y, Sharpton TJ^z. (2020) *Interspecies comparative metagenomics reveals correlated gut microbiome functional capacities among vertebrates*. **bioRxiv**. doi: <https://doi.org/10.1101/2020.06.15.153320>
2. Gaulke CA^{#z}, Beaver LM, Armour CR, Humphreys IR, Barton CL, Tanguay RL, Ho E, Sharpton TJ^z. (2020) *An integrated gene catalog of the zebrafish gut microbiome reveals significant homology with mammalian microbiomes*. **bioRxiv**. doi: <https://doi.org/10.1101/2020.06.15.153924>

2. Grant and contract support

i. Current

NSF BIO 2025457 (PI: Vega) 01/01/21-12/31/26 \$2,998,043

“URoL:MTM2: Defining the ecological and genomic properties that underlie microbiome sensitivity and resilience”

The goal of this project is to resolve generalizable features of microbiomes that determine their sensitivity and resilience to anthropogenic stressors.

Sharpton's role: Co-Principal Investigator

NIH R01 DK121693-01 07/01/19-06/31/2024 \$2,319,686
“Discovery of Biological Signatures for Cruciferous Vegetable Intake: Integration of the Broccoli- and Host-derived Metabolome and Microbiome”

The goal of this project is to resolve microbiome and metabolome based biomarkers of cruciferous vegetable consumption by clinical populations.

Sharpton's role: Co-I

NSF EEID 1911994 (PI: Jolles) 10/01/19-09/30/24 \$2,499,474
“US-UK Collab.: Eco-evolutionary dynamics of infectious diseases in host population networks”

The goal of this project is to quantify rates of microbiota dispersal across bighorn sheep population networks and resolve ecological, genetic, and physiological processes that shape microbiota dispersal and colonization.

Sharpton's role: Senior Personnel

NIH R01ES030226 (PI: Sharpton) 02/01/19 - 1/31/24 \$2,104,063
“Impacts of Benzo[a]pyrene on Microbiome Development across Lifespan and Generations and the Behavioral Consequences”

The goal of this project is to resolve the role of the gut microbiome in zebrafish behavior development and how embryonic exposure to polycyclic aromatic hydrocarbons impacts this role.

NIH R01 1AT010271 (PI: Stevens) 12/01/19 – 11/31/24 \$1,584,264
“Discovery and Biological Signatures of Microbiome-Derived Xanthohumol Metabolites and their Role in Ameliorating Inflammatory Bowel Disease”

The goal of this project is to discover xanthohumol derivatives produced by gut microbiota that alleviate inflammatory bowel disease phenotypes in human populations.

Sharpton's role: Co-Investigator

Tartar Award (PI: Giovannoni) 09/15/20-12/31/20 \$3,500
“Tartar award student fellowship proposal (S. Singleton)”

This award finances a summer stipend for a PhD student that is co-advised by Giovannoni and Sharpton.

Sharpton's role: Co-Principal Investigator

NIH R21AI135641 (PI: Sharpton) 05/15/18-05/14/21 \$404,366
"Interactions between gut microbiome natural products and intestinal helminths"

The goal of this project is to discover natural products of the gut microbiome that can prevent or mitigate infection by intestinal parasites in a zebrafish model.

Sharpton's role: Principal Investigator

NIFA/USDA- 2018-67017-27358 (PI: Ho, OSU) 11/01/17-10/31/20 \$470,667
"Diet and Microbiome Interactions During Age-Related Inflammation"

The goal of this project is to determine how age-related changes in the microbiome interact with diet to impact age-related inflammation.

Sharpton's role: Co-Investigator

NIH R01GM126549 (PI: Y. Jiang, OSU) 07/01/17-06/30/21 \$808,005
“Network-based statistical methods reveal microbial and host interactions from microbiome data”

The major goal of this study is to develop statistical methods to produce mechanistically relevant models of the microbiome and how it interacts with its environment.

Sharpton's role: Co-Principal Investigator

NIH R24OD010998 (PI: Kent, OSU) 03/01/17-02/29/21 \$1,153,615
“Control and Impacts of Disease of Zebrafish in Research Facilities”
The major goal of this study is to determine how research designs produce non-protocol induced variation in zebrafish, including perturbations to the gut microbiome.
Sharpton’s role: Co-Investigator

OSU Research Office (PI: Sharpton) 05/01/2016 \$20,000
“OSU Microbiome Initiative Funding”
The OSU Research Office provided funds to finance the OSU Microbiome Initiative. I was given carte blanche control over these funds.
Indirect Funds for OSU: N/A

OSU College of Science (PI: Sharpton) 05/01/2016 \$15,000
“Robert W. Lundeen Science Faculty Development Award”
The OSU College of Science provided funds to finance the OSU Microbiome Initiative. I was given carte blanche control over these funds.

NSF DEB 1557192 (PI: Sharpton) 04/01/16-03/31/21 \$731,791
“Using Phylogenetic Structure to Clarify the Evolutionary Ecological Distribution of Microorganisms”
The goal of this study is to conduct develop an analytical approach that determines how microbes have evolved in association with their ecological distribution.
Sharpton’s role: Principal Investigator

ii. Completed

NIH NCCIH 1R01AT009168-01 (PI: Gombart, OSU) 09/01/15-8/31/20 \$2,680,000
“Vitamin D, xanthohumol and nuclear receptors: targeting immunity, microbiota and the gut metabolome”
The goal of this project is to determine how micronutrients interact with the gut microbiome to influence host metabolism and inflammation.
Sharpton’s role: Co-Investigator

MAF D18ZO-405 (PI: A. Jolles) 10/01/18-09/30/20 \$107,800
“Patterns and Consequences of Microbiome Ontogeny in a Free-Ranging Mammal, the Cape Buffalo”
The goal of this project is to resolve how the composition of the gut microbiome varies over the course of developmental maturation in a wild mammal population.
Sharpton’s role: Co-Principal Investigator

Tartar Award (PI: Giovannoni) 09/15/19-12/31/19 \$3,500
“Tartar award student fellowship proposal (Q. Washburn)”
This award finances a summer stipend for a PhD student that is co-advised by Giovannoni and Sharpton.
Sharpton’s role: Co-Principal Investigator

OR Department of Fish and Wildlife (PI: Sharpton) 10/01/17-09/30/19 \$57,566
“Resolving the Salmonid Gut Microbiome as a Covariate of Physiology, Ecology, and Management”
The goal of this project is to quantify how the salmonid gut microbiome varies across watersheds and hatcheries and relates to salmonid physiology. This award supported half of a PhD student and a small supply budget.

Sharpton's role: Principal Investigator

Tartar Award (PI: Sharpton) 01/01/19-03/15/19 \$3,500
“Tartar award student fellowship proposal (I. Humphreys)”

This award finances a summer stipend for a Master's student in Sharpton's laboratory.

Sharpton's role: Principal Investigator

MAF D19FE-808 (PI: B. Beechler) 09/01/18-08/31/19 \$10,780

“First comparison of upper respiratory microbiome structure and function in cohabitating cats with and without feline upper respiratory tract disease”

The goal of this Morris Animal Foundation funded project is to resolve the composition and functional capacity of the feline respiratory tract microbiome and determine if the microbiome correlates with various respiratory diseases.

Sharpton's role: Co-Principal Investigator

NIH R01 NIDDK (PI: Shulzhenko, OSU) 08/01/15-07/31/19 \$1,825,000

“Gut microbiota mediates the interplay between immunity and glucose metabolism”

The goal of this study is to investigate how changes in the structure and function of the microbiome contribute to autoimmune and metabolic disorders.

Sharpton's role: Co-Investigator

Tartar Award (PI: Sharpton) 06/15/18-09/15/18 \$6,000

“Tartar award student fellowship proposal (C. Armour)”

This award finances a summer stipend for a PhD student in Sharpton's laboratory.

Sharpton's role: Principal Investigator

2016 JGI Community Sequencing Program (PI: Giovannoni, OSU) N/A N/A

“Mechanisms of Rapid Adaptation in Globally Abundant SAR11 Carbon Oxidizing Bacteria”

This goal of this project is to generate and analyze single cell genome sequences of various SAR11 strains to resolve evolutionary mechanisms of hypervariable genomic loci. The JGI financed the generation of all genomic data.

Sharpton's role: Co-Principal Investigator

Pernot Award (PI: Sharpton) 09/01/16 \$5,000

“Characterizing the Salmonid Gut Microbiome”

The Department of Microbiology awarded these funds to support the generation of pilot data regarding composition and function of the salmonid gut microbiome.

Sharpton's role: Principal Investigator

ARF Pilot Grant (PI: Sharpton, OSU) 02/01/16-01/31/18 \$7,852

“The Role of the Salmon Gut Microbiome in Resisting Parasitic Infection”

The goal of this project is to determine how changes in water temperature impact the salmon gut microbiome and the subsequent consequences to salmon health.

Sharpton's role: Principal Investigator

OR Department of Fish and Wildlife (PI: Sharpton) 10/01/16-09/30/17 \$28,476

“How the Salmonid Gut Microbiome Mediates Thermal Stress”

The goal of this project is to assess the relationship between water temperature, salmonid physiology, and the composition of the gut microbiome. This award supports half of a PhD student and a small supply budget.

Sharpton's role: Principal Investigator

OSU EHS Center Pilot Grant (PI: Sharpton, OSU) 03/01/15-02/29/16 \$10,000

High-throughput Discovery of Environmental Mechanisms of Dysbiosis

The goal of this project is to establish an experimental system that enables rapid quantification of the impact of environmental toxicant exposure on the gut microbiome.

Sharpton's role: Principal Investigator

NIH R12 NIAID (PI: Pollard, UCSF) 07/01/14-06/31/16 \$500,000

“Longitudinal and functional dynamics of autoimmune gut microbiomes”

The goal of this study is determine how the structure and function of the gut microbiome diversifies in association with the development of Crohn's disease.

Sharpton's role: Co-Investigator

Moore Foundation (PI: K. Pollard, UCSF) 11/01/11-10/31/14 \$1,510,227

“The Environmental Niche Atlas: Global Mapping of Microbial Functions”

The goal of this project was to develop bioinformatic resources that enable rapid and accurate prediction of the metabolic functions executed by a microbial community and determine how those functions distribute throughout nature.

Sharpton's role: Co-Principal Investigator

3. Open-source software and databases

SAPPHYRE (<https://github.com/sharpton/sapphyre>)

Software to automate accurate, high-throughput *de novo* 16S rRNA gene sequence phylogenies

ClaaTU (<https://github.com/gaulkec/claatu>)

Software for the identification of ecophylogenetic taxonomic units

shotcleaner (<https://github.com/sharpton/shotcleaner>)

A modular workflow for quality controlling shotgun metagenomic data

ShotMAP (<https://github.com/sharpton/shotmap>)

Distributed computing workflow to classify metagenomic data into protein families

PhylOTU (<https://github.com/sharpton/PhylOTU>)

Identifies bacterial species in metagenomic data using a phylogenetic approach

ModAlign (<https://github.com/sharpton/modalign>)

An HMM-based multiple sequence aligner

Bio::SearchIO::HMMER3 (<https://github.com/kblin/bioperl-hmmer3>)

BioPerl module that transforms HMMER result files into a BioPerl SearchIO object

vFams (<http://derisilab.ucsf.edu/software/price/vFam>)

Protein family database for the metagenomic identification of viruses

SFams Database (http://files.cgrb.oregonstate.edu/Sharpton_Lab/SiftingFamilies/)

Diverse protein family database that rapidly incorporates new genomic data

4. Selected Presentations from the Past 5 Years

- Invited Speaker. 8th Microbiome & Probiotics R&D and Business Collaboration Forum USA. November 2020. Virtual Conference. *The Early Environment, Gut Microbiome, and Behavior Development*.
- Invited Speaker. SHARP Columbia Microbiome Data Bootcamp. Virtual Workshop. July 2020. *16S Phylogenetics*.

- Invited Speaker. Microbiome Data Congress. Toronto, CA. Planned May 2020 - Cancelled due to COVID.
- Invited Speaker. OHSU Rheumatology Grand Rounds. Portland, OR. Dec. 2019. *An overview of the microbiome in health and disease.*
- Plenary Speaker. Multiple Sclerosis Wellness Research Symposium. Portland, OR. Oct. 2019. *An overview of the microbiome in health and disease.*
- Invited Speaker. International Fish Microbiota Workshop. Eugene, OR. Sept. 2019. *An integrative gene of genes in the zebrafish gut metagenome.*
- Invited Speaker. American Society for Microbiology Oregon Chapter Meeting, Corvallis, OR. Dec. 2019. *The Human Microbiome: An Emerging Medical Frontier Empowered by Data Analytics.*
- Invited Speaker. Oregon State University Foundation MAC Lecture. Portland, OR. June 2019. *The Garden In Your Gut*
- Invited Speaker. Second Genome, Inc., South San Francisco, CA (presented virtually). June 2019. *A Metagenomic Meta-Analysis Reveals Functional Signatures of Health and Disease in the Human Gut Microbiome*
- Plenary Speaker. Integrative Mental Health Conference. San Francisco, CA. April 2019. *Gut Feelings: The Gut Microbiome And Mental Health.*
- Session Moderator. International Symbiosis Society Meeting. Corvallis, OR. July 2018. *Host-Microbiome Interactions.*
- Invited Lecture. Computational Genomics Summer Institute, Los Angeles, CA. July 2018. *Imputing the Functional Capacity of Microbiomes Through Metagenome Annotation.*
- Invited Lecture. The Friends of the Corvallis Benton County Public Library Book Review, Corvallis, OR. December 2017. *I Contain Multitudes: A Random Review on the Gut Microbiome.*
- Invited Lecture. Society of Environmental Toxicology and Chemistry North America General Meeting, Minneapolis, MN. Nov. 2017. *Zebrafish as a Resource for Characterizing Gut Microbiome-Exposure Interactions*
- Invited Lecture. Society of Industrial Microbiology and Biotechnology General Meeting. Denver, CO. August 2017. *Comparative Metagenomics Clarifies the Functional Association between Mammalian Physiology and the Gut Microbiome.*
- Invited Lecture. Oregon Health Sciences Institute of Environmental Health. Portland, OR. May 2017. *The Gut Metagenome Across Health, Environments, and Evolution.*
- Invited Lecture. The Department of Biology Seminar Series, Vanderbilt University, Nashville, TN. March 2017. *The Gut Metagenome Across Health, Environments, and Evolution.*
- Invited Lecture. OHSU Primate Research Center Seminar, Beaverton, OR. Feb. 2017. *The Gut Metagenome Across the Environment, Health, and Evolution.*
- Invited Lecture. Plant and Animal Genome Conference, San Diego, CA. Jan. 2017. *The Microbiome Across Health and Evolution.*
- Invited Speaker. The Obesity Society Annual Meeting, New Orleans, LA. Oct. 2016. *How Microbiomes are Distributed Across Space, Time and Host Physiology.*
- Invited Speaker. The International Conferences on Biological Ontologies, Corvallis, OR. August 2016. *Microbiomes, Metagenomes, and Informatic Techniques to Characterize the Uncultured Biosphere.*
- Invited Lecture. Corvallis Science Pub, Corvallis, OR. April 2016. *Gut Check: More Than Just Butterflies in our Stomach.*
- Invited Lecture. College of Computing and Informatics Seminar, University of North Carolina, Charlotte, NC. March 2016. *What Lies Inside: Investigations into the Ecology, Evolution, and Function of the Gut Microbiome.*
- Invited Lecture. Department of Ecology and Evolution Seminar, State University of New York, Stony Brook, NY. Feb. 2016. *What Lies Inside: Investigations into the Ecology, Evolution, and Function of the Gut Microbiome*

- Invited Lecture. Microbiology Student Association Conference, Oregon State University, Corvallis CA. April 2015. *The Human Microbiome: Getting to the Guts of the Matter*.
- Solicited Speaker. American Society of Microbiology Annual Meeting, New Orleans, LA. June 2015. *Accurate and Rapid Metagenome Annotation Clarifies the Relationship between Enteric Microbiome Function and Inflammatory Bowel Disease*.

D. TEACHING AND TRAINING

1. University Courses (not including guest lectures in other courses)

ST 591 *Introduction to Quantitative Genomics*. A three credit course of my design that I instruct with full responsibility. Offered every other year.

MB 436 *The Human Microbiome*. A three credit course of my design that I instruct with full responsibility. Offered annually.

MB 668 *Microbial Bioinformatics and Genome Evolution*. A four credit course that I helped develop. I am responsible for 33% of this course. Offered annually.

2. Laboratory Trainees

i) International Scholars and Visiting Scientists

<u>Name</u>	<u>Training Period</u>	<u>Position</u>	<u>Institution</u>
Zhenzhen Zhang	2019-	Asst. Professor	OHSU
Jessica Flannery	2017-2019	PhD Candidate	University of Oregon
Yanfen Cheng	2015-2016	Full Professor	Nanjing Agricultural Uni. (China)

ii) Postdoctoral Trainees

<u>Name</u>	<u>Training Period</u>	<u>Current Position</u>
Leigh Combrink	2018-Present	N/A
Kristin Kasschau	2018-2019	Sharpton Lab Research Associate
Keaton Stagaman	2017-2020	Sharpton Lab Research Associate
Christopher Gaulke	2014-2020	Assistant Professor

iii) Graduate students advised

<u>Name</u>	<u>Level</u>	<u>Graduation Date</u>	<u>Program</u>	<u>Current Position</u>
Sebastian Singleton	PhD	2025 (expected)	Microbiology	N/A
Austin Hammer	PhD	2025 (expected)	Microbiology	N/A
Susan Cummings	rotation	2025 (expected)	Microbiology	Thurber Lab
Chenxiao Hu [§]	PhD	2021 (expected)	Statistics	N/A
Quinn Washburn [§]	PhD	2021 (expected)	Microbiology	N/A
Holly Arnold	DVM/PhD	2021 (expected)	CHS	N/A
Nicole Kirchoff	PhD	2020 (expected)	Microbiology	N/A
Courtney Armour	PhD	2020	MCB	Postdoc
Ian Humphreys	MS	2019	Microbiology	PhD Student
John Rolshoven	rotation	2017	MCB	Med Student
Melissa Conley	PhD	2016 (co-advised)	Nutrition	Asst. Professor
Martin Guyer	MS	2014 (co-advised)	Statistics	Industry

[§] denotes co-advised trainees

iv) Undergraduate Trainees

<u>Name</u>	<u>Program</u>	<u>Training Period</u>
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Zoe Vanderhoek	Honors College	2019-2020 (Thesis Mentor)
Addison Browning	Microbiology	2019-2020 (Research Mentor)
Ian Humphreys	Microbiology	2018 (Research Mentor)
Alexandria Wilson	Bioresource Research	2016-2018 (Thesis Mentor)
Ellen Kulinsky	Statistics (<u>UC Berkeley</u>)	2017 (REU Mentor)
Betsy Arnold	Statistics (<u>U Virginia</u>)	2017 (REU Mentor)
Aaron Huang	Statistics (<u>U Washington</u>)	2017 (REU Mentor)
Shelby Taylor	Statistics (<u>Brigham Young</u>)	2017 (REU Mentor)
Talia Helman	Microbiology	2017 (Research Mentor)
Annabelle Thorniley	Microbiology	2016 (Research Mentor)
Sean McNall	Microbiology	2015 (Research Mentor)
Lexi Gauthier	Microbiology	2015 (Research Mentor)
Holman Jue	Microbiology	2014-2015 (Research Mentor)
Kyle Duyck	Biochemistry/Biophysics	2014-2015 (Research Mentor)

3. Additional students advised as a committee member (Ph.D., M.S., Undergraduate Honors)

<u>Name</u>	<u>Program</u>	<u>Graduate Date</u>
Jared Stine	PhD (Env. Engineering)	2025 (expected)
Suji Park	PhD (Chemistry)	2025 (expected)
Courtney Hendrickson	PhD (Integrative Biology)	2025 (expected)
Alex Vompe	PhD (Microbiology)	2025 (expected)
Tascha Griffin	PhD (CEAOS)	2025 (expected)
Rachael Aber	PhD (Integrative Biology)	2025 (expected)
Christine Tataru	PhD (Microbiology)	2024 (expected)
Meghamala Sinha	PhD (EECS)	2023 (expected)
Jared Johnson	PhD (Food Science Technology)	2022 (expected)
Prarthana Shankar	PhD (Env. Molecular Tox.)	2021 (expected)
Yang Zhang	PhD (Nutrition)	2021 (expected)
Grace Klinges	PhD (Microbiology)	2021 (expected)
Aimee Massey	Ph.D. (Fish and Wildlife)	2021 (expected)
Meghalama Sina	MS (EECS)	2021 (expected)
Bachar Cheaib	PhD (<u>University of Laval, Canada</u>)	2020
Ying Dai	MS (Statistics)	2020
Kevin Piago	MS (Food Science Technology)	2020
Ed Barge	PhD (Botany)	2019
Jessica Flannery	PhD (Psychology, U Oregon)	2019
Brandon Kieft	Ph.D. (Microbiology)	2019
Trevor Tivey	Ph.D. (Integrative Biology)	2019
Ryan McMinds	Ph.D. (Microbiology)	2018
Wanli Zhang	PhD (Statistics)	2017
Sawyer Hicks	BS (Bioresource Research)	2017
Mudra Choudhury	B.S. (Bioresource Research)	2016
Laruen Brooks	Ph.D. (Microbiology)	2016
Sarah Nalven	M.S. (CEAOS)	2016
Kimberly Kenny	BA (Honors)	2014
Krista Soderlund	BS (Honors)	2014
Edward Davis	PhD (Botany)	2014
Kevin Vergin	PhD (Microbiology)	2015
Robbie Eberhard-Garah	BS (Bioresource Research)	2014

E. SERVICE

1. University Service

i. Department/unit

- 2020-
2020-
2020-
2018-2019
2017-2019
2016
2016-
2015
2014-17
2014-15
- Co-Chair.* Department of Microbiology Data Analytics Committee.
Executive Committee Member. Department of Microbiology.
Committee Member. Department of Statistics Promotion and Tenure Committee.
Committee Member. Department of Microbiology Space Committee.
Committee Member. Department of Statistics Curriculum Committee.
Program Administrator. OSU Department of Statistics' American Statistical Association Funded Undergraduate Research Experience Program.
Chair. Department of Microbiology Seminar Committee.
Contributing Author. Department of Statistics' OSU Research Equipment Reserve Fund Grant Application for a distributed computing cluster
Committee Member. Microbiology Graduate Admissions Committee
Committee Member. BioHealth Sciences Undergraduate Curriculum Committee

ii. University

- 2020
2019
2019
2018-
2017
2017
2017
2016-
2016
2016
2016
2015
2015-
2015
- Committee Member.* Center for Genome Research and Biocomputing Strategic Plan Transition Team.
Writing Team. Center for Genome Research and Biocomputing Strategic Planning Committee.
Committee Member. Center for Genome Research and Biocomputing Strategic Planning Committee.
University representative. Pacific Northwest Microbiome Network Steering Committee.
Organizer, Host, Moderator. Oregon State University Microbiome Initiative (OMBI) Microbiome Research Forum. Oregon State University, Corvallis, OR (5/12).
Organizer and Host. Public lecture on microbiome research by author Ed Yong, Oregon State University, Corvallis, OR (5/11)
Organizer and Instructor. OMBI Microbiome Informatics Training Workshop, Oregon State University, Corvallis, OR (5/11)
Founding Director. Oregon State Microbiome Initiative (OMBI)
University Representative. National Microbiome Initiative Rollout at the White House Office of Science and Technology Policy.
Lead Author. Oregon State University's response to the White House Office of Science and Technology's Call for New Commitments on microbiome research.
Member. Search committee for the Linus Pauling Directorship
Member. Open-rank search committee, Public Health and Human Services
Member. Molecular and Cellular Biology Retreat Committee.
Lead Author. Oregon State University's response to the White House Office of Science and Technology's Request for Information regarding microbiome research.
Co-Chair. Graduate Bioinformatics Minor Curriculum Committee
Ad hoc reviewer. OSU Research Equipment Reserve Fund Grants.

2. Service to the Profession

- 2020
2020
2020
2020
- Panelist.* NIH/NIEHS K99/R00 grant proposal review panel.
Promotion and Tenure Candidate Reviewer. The Open University of Israel.
Workshop Co-developer. Colombia/OSU SHARP Microbiome Data Analytics Boot Camp. Offered virtually.
Ad hoc reviewer. University of Michigan Pilot Grant Program.

- 2020 *Ad hoc reviewer.* Czech Science Foundation.
- 2020-2019 **Panelist.** NIH CRFS Study Section for reviews of R01/R21 grant proposals.
NSF Workshop Participant. NSF-Sponsored Workshop entitled *Deciphering the Microbiome.* Washington, DC.
- 2019 *Steering Committee Member.* Pacific Northwest Microbiome Conference and Mixer.
- 2019 *Ad hoc reviewer.* Swiss National Science Foundation.
- 2018 **Panelist.** NIH NIAID R13 grant proposal review panel.
- 2017 *NIH Workshop Participant.* The Human Microbiome: Emerging Themes at the Horizon of the 21st Century. Bethesda, MY
- 2017-18 *Committee Member.* The International Symbiosis Society Biannual Meeting Organizing Committee.
- 2016-2016 *Ad hoc reviewer.* National Science Foundation (IOS).
- 2016-2016 **Editorial Board Member.** Applied and Environmental Microbiology.
- 2016 **Panelist.** NSF DEB grant proposal review panel.
- 2015-2015 **Editor.** mSystems
- 2015 *Session Moderator.* META Center Symposium on Host-Microbe Systems Biology, Eugene, OR
- 2015 *Ad hoc reviewer.* The French National Research Agency
- 2014-2013 **Review Editor.** Frontiers in Systems Microbiology
- 2013-2013 *Ad hoc Referee.* Science, Nature, Nature Medicine, Nature Microbiology, Nature Biofilms and Microbiomes, Nature Communications, Proceedings of the National Academy of Sciences, The International Society of Microbial Ecology Journal, Environmental Health Perspectives, Royal Society Proceedings B, PLOS Computational Biology, PLOS Genetics, Microbiome, Bioinformatics, mBio, Frontiers in Systems Biology, BMC Genomics, Molecular Ecology, Applied Environmental Microbiology, mSystems, FEMS Microbial Ecology, PLOS ONE, Frontiers in Microbiology, Zebrafish, Environmental Pollution, Toxicological Sciences

3. Service to the Public (professionally related)

i. Public presentations

- 06/2019 *The Garden in Your Gut.*
College of Science Portland Lecture Series. Multnomah Athletic Club.
Invited speaker.
- 12/2017 *I Contain Multitudes: A Random Review on the Gut Microbiome.*
The Friends of the Corvallis Benton County Public Library, Corvallis, OR
Invited speaker.
- 11/2017 *The Human Microbiome.*
West Valley Agricultural Producers Meeting Group. Salem, OR
Invited speaker.
- 5/2017 *I Contain Multitudes.* A public lecture by science writer Ed Yong.
OSU Memorial Union, Corvallis, OR
Organizer and Host.
- 4/2016 *Gut Check: More than butterflies in our stomach.*
OSU Science Pub, Corvallis, OR
Invited speaker.
- 3/2016 *The Human Microbiome*
The Academy for Lifetime Learning, Corvallis, OR

Invited speaker.

5/2015 *The Microbiome Inside*
TRIAD, Oregon State University, Corvallis, OR
Invited speaker.

ii. Selected News Coverage

- Study: Child behavioral problems linked to 'gut' bacteria.* KOIN 6 News. Jan. 22, 2020.
<https://www.koin.com/news/health/study-child-behavioral-problems-linked-to-gut-bacteria/>
- OSU-UO study links kindergartners' behavior, gut microbiome.* KTVZ News. Jan 21, 2020.
<https://ktvz.com/news/oregon-northwest/2020/01/21/osu-uo-study-links-kindergartners-behavior-gut-microbiome/>
- Keely Chalmers. *Behavioral disorders in children tied to gut bacteria, study shows.* Jan 21, 2020.
<https://www.kgw.com/article/news/health/gut-bacteria-behavioral-disorder/283-78fd62b5-dc39-4925-acb6-6bd67d58367f>
- Handy, S. *Understanding the Connections of Gut Bacteria to Human Health and Disease.* The Science Times. May 31, 2019.
<https://www.sciencetimes.com/articles/22243/20190531/understanding-connections-gut-bacteria-human-health-disease.htm>
- Gut bacteria's connections to human health, disease.* ScienceDaily. May 30, 2019.
<https://www.sciencedaily.com/releases/2019/05/190530154216.htm>
- Day, J. *Exploring canine aggression: OSU researchers find link in guts of rescue dogs.* Corvallis Gazette-Times. Jan. 17, 2019. https://www.gazettetimes.com/news/local/exploring-canine-aggression-osu-researchers-find-link-in-guts-of/article_494c01a7-76c1-5d8e-8cad-c650f7b241fa.html
- OSU study finds link between dogs' gut microbes, aggressiveness. KTVZ News. Jan 9, 2019.
<https://www.ktvz.com/news/osu-study-finds-link-between-dogs-gut-microbes-aggressiveness/971680019>
- Olena, A. *Gut Microbes Contribute to Age-Associated Inflammation in Mice.* The Scientist. April 12, 2017. <https://www.the-scientist.com/daily-news/gut-microbes-contribute-to-age-associated-inflammation-in-mice-31664>
- Entis, L. *Why Everyone is Suddenly Talking About Gut Bacteria.* Fortune Magazine. June 28, 2016.
http://fortune.com/gut-bacteria/?xid=for_em_sh
- Sifferlin, A. *The Case Against Antibacterial Soap is Getting Stronger.* Time Magazine. May 18, 2016. <http://time.com/4339866/triclosan-antibacterial-soap-safety/>
- O'Dwyer, J. *The Hidden Power Laws of Ecosystems.* Nautilus Magazine. Oct. 29, 2015.
<http://nautil.us/issue/29/scaling/the-hidden-power-laws-of-ecosystems>
- Houtman, N. *Gut Check. Intestinal microbes affect our health.* Terra Magazine. Oct. 15, 2015.
<http://oregonstate.edu/terra/2015/10/gut-check/>
- Shikh-Lesko, R. *Microbiome Meals.* The Scientist. Oct. 1, 2015. <http://www.the-scientist.com/?articles.view/articleNo/44144/title/Microbiome-Meals/>
- Green, M. *Genetic variety in gut critters tied to disease.* The Columbia Chronicle. Feb. 2, 2015.
http://www.columbiachronicle.com/health_and_tech/article_58d3b600-b8bf-11e4-a207-f3c635020d35.html

Bradley, L. *You're not alone*. The Daily Barometer. Nov. 20, 2014.
http://www.dailybarometer.com/news/you-re-not-alone/article_fc8964f0-713b-11e4-9b08-e32e374f4d59.html

F. PROFESSIONAL TRAINING

- 2019 *Below the Waterline* workshop, which discusses the climate and culture of sexual harassment in science.
- 2020 *Black student's experiences in the College of Science* at Oregon State University, which discussed the perspectives, challenges, and needs of black students in our academic setting.